REMARKS

Status of Claims:

Claims 1-6 are present for examination.

Obviousness Rejections:

Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al. (U.S. Patent Number 6,381,244) (hereinafter Nishimura) in view of Luciani et al. (U.S. Patent Number 6,614,791) (hereinafter Luciani).

Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura in view of Luciani and in further view of Yin et al. (U.S. Patent Publication Number US 2001/0055313) (hereinafter Yin).

With respect to claims 1-6, as amended, the rejections are respectfully traversed.

Independent claim 1, as amended, recites an ATM (asynchronous switching mode) edge node switching equipment that is connected to plural user terminals in an ATM network, comprising:

> "an IP (Internet protocol) data packet distribution unit, which distributes IP data packets to each of said plural user terminals by utilizing an IP-VPN (Internet protocol-virtual private network) unit;
>
> wherein said IP-VPN unit comprises:
>
> an inputted IP data packet analyzing section that obtains an input VC (virtual channel) number, and also obtains a VPN-ID (virtual private network-identifier) for distinguishing each of said user terminals and a QOS (quality of service) type based on said input VC number and QOS information from a header part of an IP data packet transferred from one of said plural user terminals, said QOS information including a protocol type, a destination service port number, a source address service port number, and a code point; and
>
> a routing information retrieving section that retrieves an output VC number of an output VC to which said IP data packet is transferred based on a destination IP address in said IP data packet, said VPN-ID, and said QOS type." (Emphasis Added).

An ATM edge node switching equipment including the above-quoted features has the advantage that an inputted IP data packet analyzing section can obtain a VPN-ID and a QOS type based on an obtained input VC number and QOS information, where the QOS information is specified in a header part of an IP data packet. Also, a routing information retrieving section can retrieve an output VC number of an output VC to which the IP data packet is transferred based on a destination IP address, the VPN-ID, and the QOS type. Such an ATM edge node switching equipment addresses the problem in the prior art that user terminals in an L2-VPN are connected in a mesh connection and, as a result, there is a high cost for such a network because the number of leased lines is great. Moreover, in the prior art, with an L3-VPN, the cost of the network can be reduced as compared with an L2-VPN, but assurance of QOS cannot be achieved. (Specification; page 2, line 10 to page 3, line 2).

With an ATM edge node switching equipment including the above-quoted features, an IP data packet can be distributed over a core ATM network by having an IP-VPN unit that can determine an output virtual channel to which to route the IP data packet based on a destination IP address, a VPN-ID, and a QOS type. By allowing for transmission of IP data packets from user terminals to the ATM edge node switching equipment, the number of leased lines required for the user terminals can be reduced as compared to an L2-VPN and, thus, a connection cost can be reduced. Furthermore, by having the ATM edge note switching equipment route IP data packets over a core ATM network, a QOS assurance of the ATM network can be applied to the IP data packet. (Specification; page 3, lines 5-11; page 6, line 24 to page 7, line 4; page 16, lines 17-25).

Neither Nishimura nor Luciani, alone or in combination, disclose or suggest an ATM edge node switching equipment including the above-quoted features. The Examiner states that, "Nishimura et al. also teaches an ATM Exchange EX1 (IP data packet distribution function) in Figure 5 that distributes IP data packets to plural user terminals...". However, the ATM Exchange EX1 in Figure 5 of Nishimura does not distribute IP data packets.

With the method of Nishimura, if an originating terminal A transmits data to a terminal C, a connectionless data packet (IP packet) is **disassembled** by the terminal A into the cells $C_1 - C_n$, the cells are sent to a datagram VCC, and a leading cell C_0 which indicates

the address of the terminal C is sent to the exchange EX1 in front of the cells $C_1 - C_n$. (Nishimura; column 7, line 62 to column 8, line 3). Thus, with the method of Nishimura, terminals are required to disassemble IP packets into cells before transmission to ATM exchanges and are also required to insert a leading cell in front of the transmitted cells. (Nishimura; column 10, lines 27-34). As a consequence, with the method of Nishimura, the ATM exchange EX1 never even receives an IP data packet and, hence, does not distribute IP data packets as asserted by the Examiner. Indeed, when Nishimura discusses the ATM exchange EX1 of Figure 5, Nishimura only discloses that EX1 switches cells and neither discloses nor suggests that the ATM exchange EX1 of Figure 5 distributes IP data packets. (Nishimura; column 13, lines 28-33; column 15, lines 13-17).

Moreover, the Examiner points to fields $F_1 - F_4$ of cell element C_0 in Figure 2 of Nishimura as disclosing "a protocol identifier (protocol type), a source terminal address field (source address service port number), a destination address field (destination service port number), and a cell identifier field (code point) that is contained within the header portion of the received packet from a user terminal." (Emphasis Added). However, with the ATM edge node switching equipment including the above-quoted features, the QOS information including a protocol type, a destination service port number, a source address service port number, and a code point are specified in a header part of an IP data packet. The cell element C_0 of Nishimura is not an IP data packet and, as shown in FIG. 2 of Nishimura, an IP data packet in the method of Nishimura must be disassembled by a terminal into cells $C_1 - C_n$ and then the additional cell C_0 must be transmitted in front of the cells $C_1 - C_n$ to an ATM exchange.

Thus, with the method of Nishimura, user terminals must be altered so that the terminals can be configured to disassemble IP data packets and to form additional cells C_0 before transmitting the data to an ATM exchange. In contrast, with an ATM edge node switching equipment including the above-quoted features, an IP data packet distribution unit is able to distribute IP data packets to user terminals.

Furthermore, combining the system of Luciani with the system of Nishimura does not cure the defect of Nishimura, because Luciani does not disclose an IP data packet distribution

unit that distributes IP data packets to user terminals by utilizing an IP-VPN unit that obtains a QOS type based in part on QOS information from a header part of an IP data packet. In the system of Luciani, the packets that are used do not have an IP header but, rather, have a Logical Link Control/SubNetwork Attachment Point (LLC/SNAP) header. (Luciani; FIG. 6A; column 9, lines 39-43).

Therefore, independent claim 1, as amended, is neither disclosed nor suggested by the cited prior art and, hence, is believed to be allowable.

Independent claim 4 recites an ATM edge node switching equipment with similar features as features of the ATM edge node switching equipment of claim 1. Therefore, independent claim 4 is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

The dependent claims are deemed allowable for at least the same reasons indicated above with regard to the independent claims from which they depend.

Conclusion:

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By _____

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